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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/607,013

06/27/2003

Tetsuo Fukuda

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05/07/2004

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EXAMINER

GARCIA, JOANNIE A

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,013

Applicant(s)

FUKUDA ET AL.

Examiner

Joannie A Garcia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 11-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Claims 2 and 8 are objected to because of the following informalities: In claim 2, line 4, "lest" before "one of an isotope" should be replaced with --least--. Appropriate correction is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "interface" in line 4. There is insufficient antecedent basis for this limitation in the claim.

In claim 5, line 4, "can be" after "carbon atoms" should be replaced with --is--.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 3 is rejected under 35 U.S.C. 102(a) as being anticipated by Slater et al (U.S. Patent 6,392,220).

Slater et al discloses a semiconductor substrate comprising a base substrate 228 and a silicon layer 226 bonded to each other with an insulation film 224 formed therebetween (Figure 14, and Column 24, lines 55-58). An isotope composition ratio of one isotope being above 95%

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would have been met since Slater et al contemplates the use of pure isotope (Column 25, lines 1-15).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 6-10, are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art, in combination with Ma (U.S. Patent 5,144,409), and the following comments.

Applicant's admitted prior art discloses a semiconductor substrate comprising a silicon germanium layer formed on a silicon substrate, and silicon layer formed on the silicon germanium layer; a silicon germanium substrate and a silicon layer formed on the silicon germanium substrate; and, a silicon germanium layer formed on a base substrate with an insulation film formed therebetween and a silicon layer formed on the silicon germanium layer (Pages 4-5). Applicant's admitted prior art does not teach at least an isotope composition ratio of one Si isotope and an isotope composition ratio of one Ge isotope of at least one of the silicon substrate, the silicon germanium layer and the silicon layer being above 95%.

Ma discloses a semiconductor device with an isotope composition ratio for a Si and a Ge isotope being 98% (Column 1, lines 65-68, and Column 2, lines 1-5, and 28-35). It would have been within the scope of one of ordinary skill in the art to combine the teachings of applicant's

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admitted prior art and Ma to enable the semiconductor device of applicant's admitted prior art having an isotope composition ratio for a Si isotope and a Ge isotope being above 95%.

The examiner takes official notice that it was known at the time of applicant's invention semiconductor devices having silicon layers with surface plane orientations of (100), (113), or (011). It would have been within the scope of one of ordinary skill in the art to combine the teachings of applicant's admitted prior art and the known surface plane orientations, to achieve the semiconductor device with the silicon layers of applicant's admitted prior art.

Claims 4 and 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956 until 2/4/04. See MPEP 203.08.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Joannie Adelle García whose telephone number is (571) 272-1861. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (571) 272-1855. The fax number for this group is 703-872-9306 for before final submissions, 703-872-9306 for after final submissions and the

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customer service number for group 2800 is (703) 872-9317. Updates can be found at
<http://www.uspto.gov/web/info/2800.htm>.



JAG

May 2, 2004

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